

LISTING OF CLAIMS

1. *(currently amended)*: A method for *in vitro* expansion of a population of mammalian stem or progenitor cells, the method comprising the steps of:
 - (a) providing an effective amount of Asb-a polypeptide to ~~[[the]]~~ stem or progenitor cells ~~so that whereby~~ the intracellular concentration of the Asb-a polypeptide in said cells is sufficient to prevent differentiation of the cells; and,
 - (b) culturing the stem or progenitor cells for a period of time sufficient for the cells to divide and self-renew.

2. *(currently amended)*: A method according to claim 1, wherein ~~whereby~~ the intracellular concentration of the Asb-a polypeptide is maintained at a level sufficient to prevent differentiation of the cells for a period of time sufficient for the cells to divide and self-renew until the population ~~of the stem or progenitor cells~~ has reached a predetermined ~~desired~~ size.

3. *(currently amended)*: A method according to claim[[s]] 1 ~~or 2~~, whereby the Asb-a polypeptide is provided to the cells by addition of an exogenous Asb-a polypeptide to ~~[[the]]~~ culture medium in which the cells are cultured.

4. *(original)*: A method according to claim 3, whereby the Asb-a polypeptide is fused to a transport moiety.

5. *(original)*: A method according to claim 4, whereby the Asb-a polypeptide is genetically fused to the transport moiety.

6. *(currently amended)*: A method according to claim[[s]] 4 ~~[[or 5]]~~, wherein ~~whereby~~ the transport moiety is a fragment of an HIV tat protein.

7. *(currently amended)*: A method according to claim[[s]] 1 ~~[[or 2]]~~, wherein ~~whereby~~ the Asb-a polypeptide is provided to the cells by introducing into the cells an exogenous nucleic acid comprising a nucleotide sequence encoding the Asb-a polypeptide ~~into the stem or progenitor cells~~.

8. *(currently amended)*: A method according to claim 7, wherein ~~whereby~~ the nucleic acid is an RNA molecule that is ~~capable of being~~ translated in the ~~stem or progenitor~~ cells.

9. *(currently amended)*: A method according to claim 7, wherein ~~whereby~~ the exogenous nucleic acid is an expression vector in which ~~wherein~~ the nucleotide sequence encoding the Asb-a polypeptide is operably linked to a promoter that is capable of regulating transcription of said polypeptide in the ~~stem or progenitor~~ cells.
10. *(currently amended)*: A method according to claim 9, wherein ~~whereby~~ the expression vector is one that results in a vector for transient expression of the nucleotide sequence ~~encoding the Asb-a polypeptide~~.
11. *(currently amended)*: A method according to claim 10, wherein ~~whereby~~ the vector is an episomal vector that does not replicate in the ~~stem or progenitor~~ cells.
12. *(currently amended)*: A method according to claim 9, wherein ~~whereby~~ the vector comprises sites for recombination on either side flanking the coding ~~nucleotide sequence encoding the Asb-a polypeptide~~.
13. *(currently amended)*: A method according to claim 12, wherein ~~whereby~~ the vector integrates in to the genome of the ~~stem or progenitor~~ cells.
14. *(currently amended)*: A method according to claim 12, wherein ~~whereby~~ the vector is a retroviral vector.
15. *(currently amended)*: A method according to ~~any one of claim~~[[s]] 1[[- 14]], wherein ~~whereby~~ the stem or progenitor cells are ~~selected from the group consisting of~~ hematopoietic stem cells, neural crest stem cells, mesenchymal stem cells, embryonic stem cells, endodermal stem cells, ectodermal stem cells, trophoblastic stem cells, mesodermal[[ic]] stem cells, cardiomyoblastic stem cells, endocrine stem cells, neurogenic precursor cells, skin precursor cells, renal precursor cells, hepatic precursor cells, pancreatic precursor cells or ~~and~~ endothelial cells.
16. *(currently amended)*: A method according to claim 15, wherein ~~whereby~~ the stem or progenitor cells are human stem or progenitor cells.

17. *(currently amended)*: An Asb-a polypeptide having an amino acid sequence with at least 39% ~~amino acid~~ identity with SEQ ID NO: 1 or 3, and which is able ~~and having the capability~~ to suppress NGF-induced terminal neuronal differentiation of PC12 cells, while allowing

- (i) [[a]] conversion of the PC12 cells to a neuronal precursor state and
- (ii) ~~allowing~~ proliferation of the PC-12 cells.

18. *(currently amended)*: An isolated nucleic acid molecule comprising a nucleotide sequence that encodes an Asb-a polypeptide which is able ~~having the capability~~ to suppress NGF-induced terminal neuronal differentiation of PC12 cells, while allowing (i) [[a]] conversion of the PC12 cells to a neuronal precursor state; and (ii) ~~allowing~~ proliferation of the PC12 cells, which ~~whereby~~ the nucleotide sequence is selected from the group consisting of:

- (a) a nucleotide sequence encoding a polypeptide comprising an amino acid sequence having at least 39% identity with the amino acid sequence of SEQ ID NO: 1 or 3;
- (b) a nucleotide sequence that has at least 35% identity with a nucleotide sequence of as ~~depicted in~~ SEQ ID NO:2 or 4;
- (c) a nucleotide sequence, the complementary strand of which hybridizes ~~hybridises~~ to a nucleotide sequence acid having a sequence as ~~depicted in~~ SEQ ID NO:2 or 4 under moderate or stringent conditions, and;
- (d) a nucleotide sequence which differs from the nucleotide sequence of (c) by differences that do not result in amino acid sequence changes in an encoded polypeptide due to the degeneracy of the genetic code.

19. *(currently amended)*: A vector comprising the [[a]] nucleic acid molecule of as ~~defined in~~ claim~~[[s]]~~ 18.

20. *(currently amended)*: An expression vector which comprises the vector of ~~comprising a nucleic acid molecule as defined in claim 18, and further comprises~~ ~~wherein the nucleotide sequence encoding the Asb-a polypeptide is an~~ operably linked to a promoter capable of directing driving expression of the coding sequence in a host cell[s] into which ~~for~~ the vector is introduced.

21. *(currently amended)*: An expression vector according to claim 20, wherein the promoter is a ~~promoter that is~~ active in stem or progenitor cells.

22. *(currently amended)*: An expression vector according to claim 21, wherein the promoter is a ~~promoter is a promoter~~ selected from the group consisting of an Oct4 promoter, an Oct5 promoter, a TCF-regulated promoter, a LIF-regulated promoter, and a Notch IC/*herl* targeted promoter.

23. *(currently amended)*: A host cell comprising a vector according to claim ~~as defined in any one of claims 19~~ [[- 22]].

24. *(currently amended)*: A method for producing an Asb-a polypeptide, ~~the method~~ comprising the step of culturing the [[a]] host cell ~~of as defined in claim 29~~ [[23]] under conditions conducive to the expression of the polypeptide, and, optionally recovering the polypeptide.

25. *(currently amended)*: A host cell according to claim 29 [[23]], which ~~wherein the host cell~~ is a stem or progenitor cell.

26. *(currently amended)*: A stem or progenitor cell comprising

- (i) an exogenous Asb-a polypeptide,
- (ii) an exogenous nucleotide sequence encoding an Asb-a polypeptide, or
- (iii) both (i) and (ii).

27. *(currently amended)*: A stem or progenitor cell according to claim 26, which is ~~whereby the stem or progenitor cells are selected from the group consisting of~~ a hematopoietic stem cell[[s]], a neural crest stem cell[[s]], a mesenchymal stem cell[[s]], an embryonic stem cell[[s]], an endodermal stem cell[[s]], an ectodermal stem cell[[s]], a trophoblastic stem cell[[s]], a mesodermal[[i]]c stem cell[[s]], a cardiomyoblastic stem cell[[s]], an endocrine stem cell[[s]], a neurogenic precursor cell[[s]], a skin precursor cell[[s]], a renal precursor cell[[s]], a hepatic precursor cell[[s]], a pancreatic precursor cell[[s]] or and an endothelial cell[[s]].

28. *(currently amended)*: A pharmaceutical composition preparation ~~comprising the~~ [[a]] stem or progenitor cell ~~of as defined in claim~~[[s]] 26 ~~or 27~~ and a pharmaceutically acceptable diluent or carrier.

29. *(new)*: A host cell comprising an expression vector according to claim 20.